

**REMARKS**

Claims 1-18, 20-27, 33 and 34 are presently pending. Claims 19 and 28-32 have been canceled. Claims 10-12 and 20-22 have been amended. Claims 33 and 34 have been added.

Applicants reserve the right to file a divisional application in order to prosecute claims directed to the non-elected invention, if desired.

Applicants respectfully request reconsideration of the application in view of the foregoing amendments and the remarks appearing below.

**Affirmation of Telephonic Election**

The Examiner has indicated that affirmation of the election made during a telephonic Restriction Requirement on April 13, 2004, is required. Applicants hereby affirm the election of the invention of claims 1-27 for immediate prosecution on the merits.

**Objection to the Claims**

The Examiner has objected to claim 10 because there is no antecedent basis for "said growth-enhancer."

Applicants have amended claim 10 to depend from claim 9, which provides the proper antecedent basis. Therefore, Applicants respectfully request that the Examiner withdraw the present objection.

**Rejection under 35 U.S.C. § 102**

The Examiner has rejected claims 1, 4 and 11 under 35 U.S.C. § 102(b) as being anticipated by U.K. Patent Application No. 2 144 613 to Doring, stating that Doring discloses a device having all of the limitations of these claims. Applicants respectfully disagree.

Doring discloses a frame for a raised garden bed. The frame includes four sidewalls (2, 3, 4), each of which includes two U-shaped profile sections (6). The upper U-shaped profile section faces downward and inhibits mollusks from entering into the raised bed from the top of the bed. The lower U-shaped profile section faces upward and is filled with a layer (15) of lime, ashes or other substance to make it more difficult for vermin to enter.

In rejecting claim 1, the Examiner asserts that the combination of lower U-shaped profile section 6 and layer 15 are the rodent deterrent of claim 1. Applicants agree that layer 15 is a rodent deterrent as contemplated by claim 1. However, Applicants respectfully assert that it is not reasonable to identify the lower U-shaped profile section as a rodent deterrent or component of a rodent deterrent.

Applicants assert that both the upper and lower U-shaped profile sections are a necessary part of the sidewalls and, therefore, cannot be asserted to be something separate from the sidewalls. In other words, since the lower U-shaped profile sections are part of each sidewall, they cannot be all or part of a rodent deterrent, which, as claimed, is separate and distinct from the sidewall. Indeed, in describing the sidewalls, Doring himself acknowledges this unity of the sidewall structure in stating "[a]t its upper edge, each sidewall 2, 3, 4 has a U-shaped profile section 6 whose open end faces in a downward direction, while an upwardly open U-shaped profile section 6 is provided at the lower edge." Page 3, lines 15-18 [emphasis added].

Since the U-shaped profile sections are part of the sidewalls, the only element that Doring discloses that may be fairly considered a rodent deterrent as contemplated by claim 1 is the layer of lime ashes or other substance. In this connection, Applicants note that claim 1 requires that the rodent deterrent be secured to at least a portion of the exterior of the container. Applicants assert that layer 15 of the Doring application, however, is made up of lime or ashes that are placed loosely into U-shaped profile section 6. This is so because both lime and ashes are generally powdery or particulate-type substances, and FIG. 2 of the Doring application appears to show layer 15 as being formed from a loosely laid substance. In this connection, the U-shaped profile section is particularly suited for holding powdery substances. In view of this, Applicants believe it would be improper to assert that layer 15 is secured to the sidewall. Because Doring fails to disclose a rodent deterrent that is secured to a container as required by independent claim 1, the Doring patent cannot anticipate claim 1, nor claims 2-11 that depend therefrom.

Regarding claim 4, this claim requires, among other things, that the rodent deterrent comprise seashell fragments. In rejecting claim 4, the Examiner asserts that Doring discloses a rodent deterrent comprising seashell fragments, stating that lime is a plurality of seashell fragments. Applicants respectfully disagree. Lime consists largely of calcium oxide. Seashells

consist essentially of calcium carbonate. The plain and ordinary meaning of "fragment" is a "part broken off, detached or incomplete." Webster's Ninth New Collegiate Dictionary (1991). Any part broken off of a seashell would consist primarily of calcium carbonate, not calcium oxide, i.e., not lime. While it is true that lime can be produced by calcining seashells, during calcining the calcium carbonate of the seashell is transformed into calcium oxide. By virtue of this transformation, the resulting lime cannot reasonably be considered to be fragments, i.e., broken-off parts of the original seashell. Since Doring does not disclose that the rodent deterrent may be seashell fragments, the Doring application cannot anticipate claim 4.

For at least the foregoing reasons, Applicants respectfully request that the Examiner withdraw the present rejection.

#### **Rejections under 35 U.S.C. § 103**

##### ***Doring and Kawaguchi et al.***

The Examiner has rejected claims 2 and 3 under 35 U.S.C. § 103 as being obvious in view of the Doring patent application, discussed above, and further in view of U.S. Patent No. 5,675,933 to Kawaguchi et al., stating that Doring discloses all of the limitations of these claims except for a closure and a closure comprising a grid. The Examiner then states that Kawaguchi et al. disclose these missing limitations and asserts that it would have been obvious to a person having ordinary skill in the art at the time of the invention to provide the Doring raised garden bed with a closure and a grid closure as disclosed by Kawaguchi et al. Applicants respectfully disagree.

The Doring patent application is described above in connection with the anticipation rejection.

Kawaguchi et al. disclose a cultivation block (4) (FIGS. 3-5) that is used, e.g., to grow grass on top of concrete, roofs and other things having surfaces that people can walk on. The cultivation block is preferably about 8 in. x about 20 in. and is designed to bear the weight of people walking upon it. The cultivation block includes a box (41) having an open upper end and a protective member (43) that has "openings sufficient for the growth of sprouts when the plant seeds germinated, protects the sprouts and roots when the block 4 is treaded on by a person and

prevents the clothes worn by the person sitting thereon from wetting or soiling when the cultivation medium 1 packed in the box 41 is wet with absorbed water." Col. 4, lines 49-54.

First, as discussed above relative to the anticipation rejection, Doring does not disclose a rodent deterrent secured to at least a portion of the exterior of the container as required by claims 2 and 3. Kawaguchi et al. also do not disclose this limitation. Since the combination of the Doring and Kawaguchi et al. references fails to disclose or even suggest this limitation, the combination cannot render claims 2 and 3 obvious.

Second, Applicants assert that those skilled in the art indeed would not be motivated to make the asserted combination. This is so because the Kawaguchi et al. protective member is a robust member designed not to keep animals from accessing plant bulbs as in the present invention, but rather to support the weight of people walking and sitting upon the cultivation blocks, which, again, are for covering concrete, roofs and other walking surfaces with plants, e.g., grass.

Doring, on the other hand, discloses raised garden beds. Raised garden beds, by their very nature, are not designed to be walked or sat upon by people. Therefore, there simply is no need to provide Doring's raised garden beds with the robust protective members taught by Kawaguchi et al. Consequently, those skilled in the art would not be motivated to make the combination. In addition, even if the Examiner views the Kawaguchi et al. protective member simply as a closure generally, Applicants assert that those skilled in the art would still not be motivated to make the asserted combination. This is so because it appears that the only reason to provide the Doring frame with such a protective member would be to inhibit entry by vermin into the raised bed. However, Doring already discloses several features, e.g., the lime or ash layer and outwardly projecting upper U-shaped profile section, that act to inhibit vermin from getting into the beds. Since such measures are already in place, those skilled in the art would not be motivated to create the redundancy that providing the Doring raised bed with a protective member would create. Applicants assert that this is particularly so because the addition of such a member would make the raised bed less attractive to viewers.

Thus, Applicants assert that because skilled artisans would not be motivated to make the asserted combination, the only way to make the combination would be to use hindsight of the

present claims. However, the level of hindsight needed to make this rejection is impermissible in formulating an obviousness-type rejection.

For at least these reasons, Applicants respectfully request that the Examiner withdraw the present rejection.

***Doring and Proctor***

The Examiner has rejected claims 5-8, 12, 14-17, 19 and 24-26 under 35 U.S.C. § 103 as being obvious in view of the Doring patent application, discussed above, and further in view of U.S. Patent No. 3,958,365 to Proctor, stating that Doring discloses all of the limitations of these claims except for the container being made of biodegradable fibers, coir, a bonding agent and latex. The Examiner then states that Proctor discloses these missing limitations and asserts that it would have been obvious to a person having ordinary skill in the art at the time of the invention to provide the Doring raised garden bed with the features disclosed by Proctor. Applicants respectfully disagree.

The Doring patent application is described above in connection with the anticipation rejection.

Proctor discloses a horticultural aid having several forms, including a molded form in which natural fibers, such as coir, pine needles or wood wool are loosely felted, sprayed with a binder such as latex, and compressed and molded to form a hanging basket or pot liner. Applicants particularly note that Proctor is completely silent on the molded aid having a plurality of apertures for allowing plant roots to grow therethrough. In fact, Proctor appears to teach away from providing the molded aid with such apertures. For example, at col. 3, lines 39-53 Proctor states that molded aids can benefit from additional application of any of various polymers. It appears this additional application of a polymer would fill any voids remaining after the compression and molding steps. In addition, regarding the other form of the horticultural aid, i.e., the mulch form, Proctor states at col. 2, lines 48-53 that the mulch aid is intended to provide the functions of conventional mulch, e.g., to prevent weed growth. Applicants infer from this statement that the aid is so dense that weeds cannot grow therethrough. Since the molded aid is felted and compressed in the same manner as the mulch aid, the molded aid must be at least as

dense as the mulch aid (and probably denser as a result of the additional molding steps) and, therefore, would not have apertures allowing for the growth of roots therethrough.

Regarding claims 5-8, which depend from claim 1, neither Doring nor Proctor disclose a rodent deterrent secured to at least a portion of the container as required by these claims. Since any combination of the Doring and Proctor references would lack this limitation, the combination cannot render these claims obvious.

The Examiner asserts that it would have been obvious to a person having ordinary skill in the art to make Doring's raised plant bed frame from biodegradable fibers, as taught by Proctor. Applicants respectfully disagree with this assertion for at least two practical reasons. First, if the Doring frames were made from biodegradable fibers they would decompose quickly, and the frame would collapse. Surely Doring specified that his frame members be made of metal partly because of its durability that would allow the frame to remain sturdy and useful over many planting seasons. Second, from a strength point of view, the Proctor materials would be very impractical. The Doring frame members are subjected to large lateral loads from the soil contained in the raised beds and must resist these loads in beam-like bending from end to end. The fact that metal is relatively very strong and stiff is another reason that Doring specified that the frame be made of metal. Metal can easily handle the loads from the soil within the raised beds. In contrast, it would be very difficult to use the Proctor construction methods to make frame members strong enough to be used in the Doring raised bed.

Indeed, Applicants assert that those having ordinary skill in the art simply would not be motivated to use the Proctor construction methods to make the Doring bed frame members. Furthermore, Applicants assert that the only motivation to make the applied combination is to use an impermissible amount of hindsight of the present claims.

Regarding independent claim 12, as amended this claim requires, among other things, that the container comprise a bottom that includes biodegradable fibers defining a plurality of openings sized to allow a plurality of plant roots to grow therethrough. As discussed above in describing the Proctor horticultural aid, Proctor is completely silent on, and appears to teach away from, providing such openings. Since neither Doring nor Proctor disclose biodegradable fibers having such openings, the combination cannot render amended claim 12 obvious.

Regarding claim 14-17, each of these claims is not obvious in view of the applied combination for at least the reason that they depend from amended independent claim 12, which as discussed immediately above, is not obvious in view of the applied combination. In addition, claim 14 is not obvious for the additional reason that neither Doring nor Proctor disclose or even suggest the limitation of claim 14 of a rodent deterrent attached to the exterior of the container. Again, the Doring patent application's lack of any disclosure or suggestion of this limitation is discussed above in detail relative to the anticipation rejection.

Regarding claim 19, this claim has been canceled and essentially incorporated into amended claim 12, which is discussed above.

Regarding independent claim 24, this claim requires, among other things, the step of planting in a second soil an assembly comprising a container containing a planted bulb. Neither Doring nor Proctor disclose or even suggest such a step. In this connection, the Examiner asserts that Doring discloses that the raised bed frame and contents thereof are planted in the "Earth as shown in fig. 2." Office Action page 5, second line up from bottom. Applicants respectfully disagree. FIG. 2, and other Doring figures, clearly show that the entire raised bed is located above the surface of the surrounding soil. This is not surprising, since the very nature of a raised bed is to provide a bed that rises above its surrounding. Consequently, Doring does not disclose or suggest planting his raised beds or any part thereof in a second soil.

The term "planting" as used in claim 24 in accordance with its plain and ordinary meaning requires placement in the ground for growth. See, Webster's Ninth New Collegiate Dictionary (1991). The only planting disclosed by Doring is the planting of plants in the soil in the raised bed, which is equivalent to the first soil of claim 24 that is inside the container.

Nor does Proctor disclose or even suggest planting his horticultural aid in a second soil. Rather, Proctor discloses that his molded aid may be used either as a hanging basket or as a liner for a pot. Neither of these involves planting the aid in a second soil as recited in original claim 24. Since the applied combination does not so much as suggest the planting step of claim 24, the combination cannot render this claim obvious.

Regarding claims 25 and 26, these claims are not obvious in view of the applied combination for at least the reason that they depend from independent claim 24, which as just

discussed, is not rendered obvious by the applied combination. In addition, claim 26 requires the step of providing a closure that deters a rodent from entering the cavity through the top opening. Applicants assert that neither Doring nor Proctor disclose, or even suggest, such a step. Doring is completely silent on any sort of top closure. As the Examiner points out, Proctor discloses that pots or tubs may be covered with the mulch version of the Proctor aid. However, Proctor is silent on this cover deterring animals from entering the cavity of the pot or tub. Applicants assert that it is improper for the Examiner to assert that the Proctor cover deters animals without specific evidence of such. This is so because Applicants have found that rodents can simply gnaw through containers made of biodegradable materials, such as coir mixed with latex. Indeed, this is a reason that Applicants secure a rodent deterrent to the exterior of their container. Since neither Doring nor Proctor disclose or even suggest providing a rodent deterring closure as required by claim 26, Applicants assert that the applied combination cannot render claim 26 obvious.

For at least these reasons, Applicants respectfully request that the Examiner withdraw the present rejection.

***Doring and Kanai***

The Examiner has rejected claims 9 and 10 under 35 U.S.C. § 103 as being obvious in view of the Doring patent application, discussed above, and further in view of Japanese document No. 403266916 to Kanai, stating that Doring discloses all of the limitations of these claims except for a growth enhancer. The Examiner then states that Proctor discloses these missing limitations and asserts that it would have been obvious to a person having ordinary skill in the art at the time of the invention to provide the Doring raised garden bed with the features disclosed by Kanai. Applicants respectfully disagree.

Doring is as described above with respect to the anticipation rejection.

Kanai discloses coating an antagonistic microbial material on the interior of a plant container.

Claims 9 and 10 are not obvious in view of the applied combination because neither the Doring nor the Kanai reference disclose at least a rodent deterrent secured to at least a portion of the exterior of the container as required by these claims. Regarding claim 10, Applicants assert



that the Kanai microbial material is not a fungus as required by this claim. A growth enhancing fungus, such as mycorrhizae, works in a much different manner than the Kanai microbial material. In this connection, Applicants have attached hereto a reference describing the growth-enhancing function of mycorrhizae.

For at least the foregoing reasons, Applicants respectfully request that the Examiner withdraw the present rejection.

***Doring, Proctor and Kawaguchi et al.***

The Examiner has rejected claim 13 under 35 U.S.C. § 103 as being obvious in view of the Doring patent application, the Proctor patent and the Kawaguchi et al. patent (each described above), stating that Doring and Proctor, as applied to claim 12, disclose all of the limitations of this claim except for the closure. The Examiner then states that Kawaguchi et al. disclose the missing limitation and asserts that it would have been obvious to a person having ordinary skill in the art at the time of the invention to provide the Doring/Proctor device with the closure disclosed by Kawaguchi et al. Applicants respectfully disagree.

First, as discussed above relative to the obviousness-type rejection in view of the Doring and Proctor references, the Doring/Proctor combination does not render obvious amended independent claim 12 from which claim 13 depends. Consequently, claim 13 is not obvious in view of the cited combination for the same reason.

In addition, as discussed above in connection with the obviousness-type rejection in view of the Doring and Kawaguchi et al. references, someone skilled in the art would not be motivated to use the Kawaguchi et al. protective member in combination with the Doring raised bed because the Doring raised bed is not suitable for a protective member that a person can walk on and because such a member would be redundant to the other vermin protection measures that the Doring raised bed already includes.

Applicants further assert that those skilled in the art would not be motivated to provide the Proctor horticultural aid with the Kawaguchi et al. protective cover for the basic reason that the Proctor aid is for hanging planters, pots and tubs, each of which does not require a walking or seating surface as taught by Kawaguchi et al. Moreover, the Proctor horticultural aid simply could not support the weight of a person, so it would be nonsensical to provide a Proctor aid with

the human weight-supporting member taught by Kawaguchi et al. Since skilled artisans would not be motivated to make the applied combination, the Doring/Proctor/Kawaguchi et al. combination cannot render claim 13 obvious.

For at least the foregoing reasons, Applicants respectfully request that the Examiner withdraw the present rejection.

***Doring, Proctor and Kanai***

The Examiner has rejected claims 18, 20-22 and 27 under 35 U.S.C. § 103 as being obvious in view of the Doring patent application, the Proctor patent and the Kanai patent (each described above), stating that Doring and Proctor, as applied to claim 12, disclose all of the limitations of these claims except for a growth enhancer, a seashell enhancer and a fungal enhancer. The Examiner then states that Kanai discloses the missing limitation and asserts that it would have been obvious to a person having ordinary skill in the art at the time of the invention to provide the Doring/Proctor device with the growth enhancers disclosed by Kawaguchi et al. Applicants respectfully disagree.

First, as discussed above relative to the obviousness-type rejection in view of the Doring and Proctor references, the Doring/Proctor combination does not render obvious amended independent claim 12 and independent claim 24 from which claims 18 and 27 depend. Consequently, claims 18 and 27 are not obvious in view of the cited combination for the same reasons.

Regarding independent claim 20, as amended this claim requires, among other things, a nutritive growth-enhancer attached to the wall of the container. Doring and Proctor clearly do not disclose or suggest any growth enhancer attached to their respective walls. Kanai does not appear to disclose or suggest a nutritive growth-enhancer, but rather an antagonistic material that suppresses and exterminates pathogenic germs. In other words, the Kanai material does not appear to provide nutrients to plants but rather kills detrimental germs. Since none of the applied references appear to disclose or suggest a nutritive growth enhancer as required by amended independent claim 20, Applicants assert that the applied combination cannot render this claim obvious.

Regarding amended claims 21 and 22, these claims depend from claim 20 and are therefore not obvious in view of the applied combination for the same reason that claim 20 is not obvious in view of this combination. In addition, claim 21 requires that the nutritive growth enhancer be ground-up seashells, and claim 22 requires that the nutritive growth enhancer be a fungus. None of the applied references, including the Kanai document, disclose or suggest these particular nutritive growth enhancers. Since none of the applied references disclose or suggest these nutritive growth enhancers, the applied combination cannot render obvious claims 21 and 22.

For at least the foregoing reasons, Applicants respectfully request that the Examiner withdraw the present rejection.

***Doring, Proctor, Kanai and Kawaguchi et al.***

The Examiner has rejected claim 23 under 35 U.S.C. § 103 as being obvious in view of the Doring patent application, the Proctor patent, the Kanai document and the Kawaguchi et al. patent (each described above), stating that Doring, Proctor and Kanai, as applied to claim 20, disclose all of the limitations of this claim except for the closure. The Examiner then states that Kawaguchi et al. disclose the missing limitation and asserts that it would have been obvious to a person having ordinary skill in the art at the time of the invention to provide the Doring/Proctor/Kanai device with the closure disclosed by Kawaguchi et al. Applicants respectfully disagree.

First, as discussed above relative to the obviousness-type rejection in view of the Doring, Proctor and Kanai references, the Doring/Proctor/Kanai combination does not render obvious amended independent claim 20 from which claim 23 depends. Consequently, claim 23 is not obvious in view of the cited combination for the same reason.

In addition, for the reasons discussed above relative to the obviousness-type rejection in view of the Doring and Kawaguchi et al. references and the obviousness-type rejection in view of the Doring, Proctor and Kawaguchi et al. references, a person having ordinary skill in the art would not have any motivation to providing either the Doring raised bed or the Proctor molded horticultural aid with the human-weight-supporting protective member of Kawaguchi et al. Consequently, claim 23 cannot be obvious in view of the applied combination.

For at least these reasons, Applicants respectfully request that the Examiner withdraw the present rejection.

#### New Claims 33-34

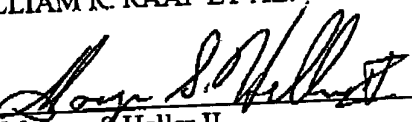
New claim 33 requires that the rodent deterrent be distributed over substantially all of the exterior of the container. New claim 34 requires that this distributed rodent deterrent be a particulate-type material. None of the references of record disclose or suggest these limitations. Therefore, Applicants assert that claims 33 and 34 are patentable over the references of record.

#### Conclusion

In view of the foregoing, Applicants respectfully submit that claims 1-18, 20-27, 33 and 34, as amended, are in condition for allowance. Therefore, prompt issuance of a Notice of Allowance is respectfully solicited. If any issues remain, the Examiner is encouraged to call the undersigned attorney at the number listed below.

Respectfully submitted,

WILLIAM R. RAAP ET AL.

By:   
Morgan S. Heller II  
Registration No.: 44,756  
Downs Rachlin Martin PLLC  
Tel: (802) 863-2375

Attorneys for Applicants

#### Attachment

Description of Mycorrhizae fungus

BTv.435786.1

17/17

Mycorrhizae

[Back to the Database!](#)

## Mycorrhizae

by

Bill Robinson

Mycorrhizae are symbiotic soil fungi, present in most soils, that attach themselves directly onto the roots of most plants. They help the host plants absorb more water and nutrients while the host plants provide food for the fungi. Because the surface area of the hyphae, the feeding structures of the mycorrhizae, may be several hundred times the surface area of the roots, the mycorrhizae can feed on a larger soil mass than the roots and they do so more thoroughly. Mycorrhizae have the potential to be a central nutritional source for the host plant. Mycorrhiza also seem to cause the host to increase the production of certain metabolites but those studies are incomplete.

One study compared the fresh weight of a group of different roses whose roots had been inoculated with two different mycorrhizae against the weight of the same varieties grown without mycorrhizae. The inoculation was done by dusting the rose roots with spores of the mycorrhizae at the time of planting. The mycorrhizae employed were *Glomus deserticola* and *G. intraradices*. After several months the roses were dug up, washed to remove any foreign material, and then weighed roots and all. The inoculated roses showed significant increases in weight in every instance. Some of the roses did better with *G. deserticola* while others did better with *G. intraradices*. In one instance a miniature rose showed a 75% increase in fresh weight with both of the test mycorrhizae.

If the conditions are right, a viable mycorrhizae colony can help the plant become more vigorous, more salt tolerant, less fertilizer dependent and more tolerant of chronic low moisture - but the key word is, "if" and there are qualifiers. First, the mycorrhizae are relatively fragile. They thrive when the organic content of the soil is high but languish when the organic content is low. Mycorrhizae also resent having the soil disturbed. Rather than digging in organic material and disturbing the soil, it is best to simply put down a 2" layer of compost in the winter and another 2" layer in the summer. The mycorrhizae sends hyphae to this rich organic layer as a prime nutritional source.

Mycorrhizae are destroyed when the soil is fumigated, sterilized, solarized or drenched with most of the pesticides used to control nematodes, grubs, or weeds. They are also sensitive to high levels of chemical fertilizer. There is a difference of opinion as to the mechanics. Some research workers say that excessive chemical fertilizer burns the hyphae just as it burns roots and the performance of the mycorrhizae falls off because they have been injured. Others research workers say that the high levels of chemical fertilizer, especially phosphorus, cause the plant roots to shift feeding patterns away from the mycorrhizae. There are many unresolved issues about the way mycorrhizae take up mineral nutrients and particularly phosphorus. There is, however, general agreement that avoiding high levels of chemical fertilizer, particularly phosphorus, promotes a more vigorous feeding through the mycorrhizae. The best management of mycorrhizae is to simply use composts with added composted manures to feed the plants while, at the same time, feeding the mycorrhizae.

Note, because mycorrhizae are fungi, they are sensitive to fungicides. There are a few scattered reports showing adverse effects on the mycorrhizae as a result of the use of garden pesticides but the studies seemed incomplete.

Finally, mycorrhizae are relatively plant specific. A mycorrhiza that gives a good response with one rose may give only a fair response with another. One way around this is to inoculate the rose at the time of planting with a "cocktail" containing a number of different mycorrhizae. A small amount of the mix is simply applied directly onto the root of the plant host. In time the various mycorrhizae will battle it out to establish the dominate colony. Commercial inoculum mixes containing a variety of viable spores are starting to become available.

Mycorrhizae may be of particular value here in Southern California where our tap water is alkaline. Iron, one of the essential nutrients, reacts with certain organic components in the soil to form complex chemical structures. The roots can not absorb the iron from these structures when the conditions are alkaline. In essence, the iron is "locked up" within

**Mycorrhizae**

the chemical structure and is no longer available to the root. The mycorrhizae, however, seem to be able absorb this "locked up" iron. Studies on the way mycorrhizae are able to do this are on-going.

BioOrganics Supply Center in Camarillo sells a "cocktail" containing spores of *Glomus intraradices*, *G. deserticola*, *G. etunicatum*, *G. clarum*, and *G. mosseae*. This seems a good mix for my garden which contains a collection of various Old Garden Roses, English Roses, a few modern roses, a variety of perennials, shrubs, and ground covers. I am adding some additional Old Garden Roses and English Roses. My plan is to dust the roots of these new roses with this "cocktail" and to allow the various mycorrhizae to spread through the garden on their own. I have high hopes for a way around my problems with my alkaline tap water and the iron nutrients. We'll just have to wait and see. Start

BEST AVAILABLE COPY